Defense Information Systems Agency

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JITC Interoperability Certification Process

JITC Policy Team

13 August 2009

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Agenda

- **Interoperability Directives and Instructions**
- **Joint Interoperability Test Certification**
  - **Interoperability Testing Guidelines**
  - **Standards Conformance Testing Guidelines**
  - **Types and Environments**
  - **Four Steps Toward Certification**
- **Certification Support Team**

Directives & Instructions

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DODD 4630.5

"IT and NSS interoperability shall be verified early, and with sufficient frequency throughout a system's life ..."

CJCSI 6212.01E

"All IT and NSS must be evaluated and certified for Joint interoperability by DISA (JITC)."

DoD 4630/5000

Interoperability is "the ability to provide and accept data, information, material, and services ... ...includes both the technical exchange of information and the end-to-end operational effectiveness of that exchange, as required for mission accomplishment."

DODI 4630.8

"All IT and NSS ... must be tested for interoperability before fielding ... and certified by DISA (JITC)."

CJCSI 3170.01G

Establishes JCIDS w/ NR-KPP for CDD and CPD

DoD 5000 series

"For IT systems, including NSS, .. JITC shall provide system interoperability test certification memoranda ... throughout the system life-cycle and regardless of ACAT"

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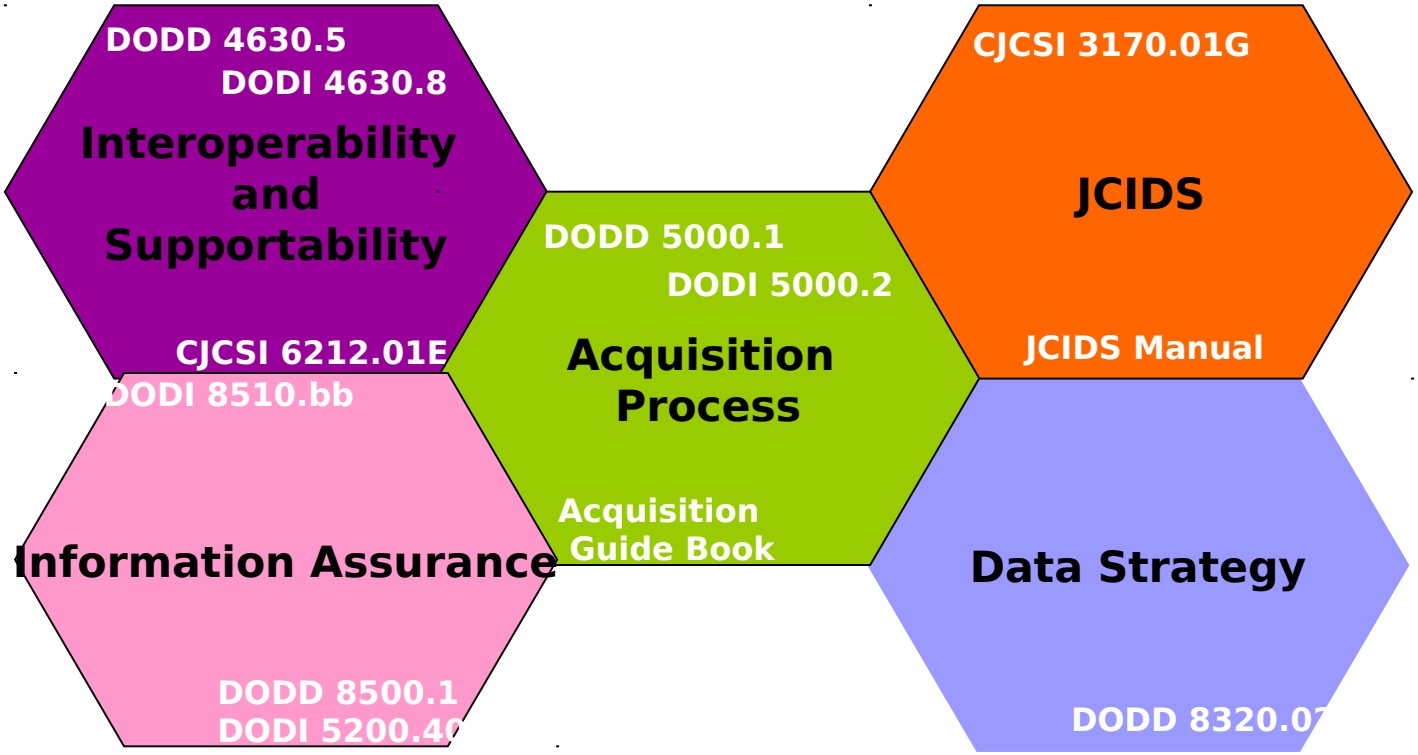
Net-Centric/Interoperability Guidance

http://jitc.fhu.disa.mil/jitc_dri/jitc.html



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What is NR-KPP?

- **A top-down key performance parameter, which replaced the previous Interoperability KPP**
- **Intent of the KPP is to:**
  - ***Define the Warfighter's primary information capability needs***
  - ***Provide authoritative, measurable and testable characteristics, and/or performance metrics required for the timely, accurate, and complete exchange and use of information***
- **NR-KPP is applicable to:**
  - ✓ **ACAT IT and NSS Systems/Programs**

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DODD 4630.5/.8

- **Defines a capability-focused, effects-based approach to advance interoperability and supportability across the Department of Defense**
- **Joint interoperability certification shall be successfully completed prior to fielding**
- **Establishes the NR-KPP to assess net-ready attributes required for both the technical exchange of information and the end-to-end operational effectiveness of that exchange**

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DODI 5000.2 Guidance

Applies to:

- All DOD Major Defense Acquisition Programs (MDAPs)
- Programs on Office of the Secretary of Defense (OSD) Test and Evaluation (T&E) Oversight List
- Post-acquisition (legacy) systems
- All programs & systems that interoperate
- All defense technology projects and acquisition programs, except where stated otherwise

"…subject to interoperability evaluations throughout their life cycles to validate their ability to support mission accomplishment."

JITC shall provide system interoperability test certification memoranda to the Director, Joint Staff J-6, throughout the system life-cycle and regardless of acquisition category.

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CJCSI 6212.01

Test/Certification Guidance

- **JITC evaluates interoperability in the most operationally realistic environment possible**
- **…determines if the system conforms to applicable standards**
- **…ensures data collected is adequate for evaluating interoperability issues**
- **Details the Net-Ready Key Performance Parameter**

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Joint Interoperability Test Certification

DISA NR-KPP T&E Process

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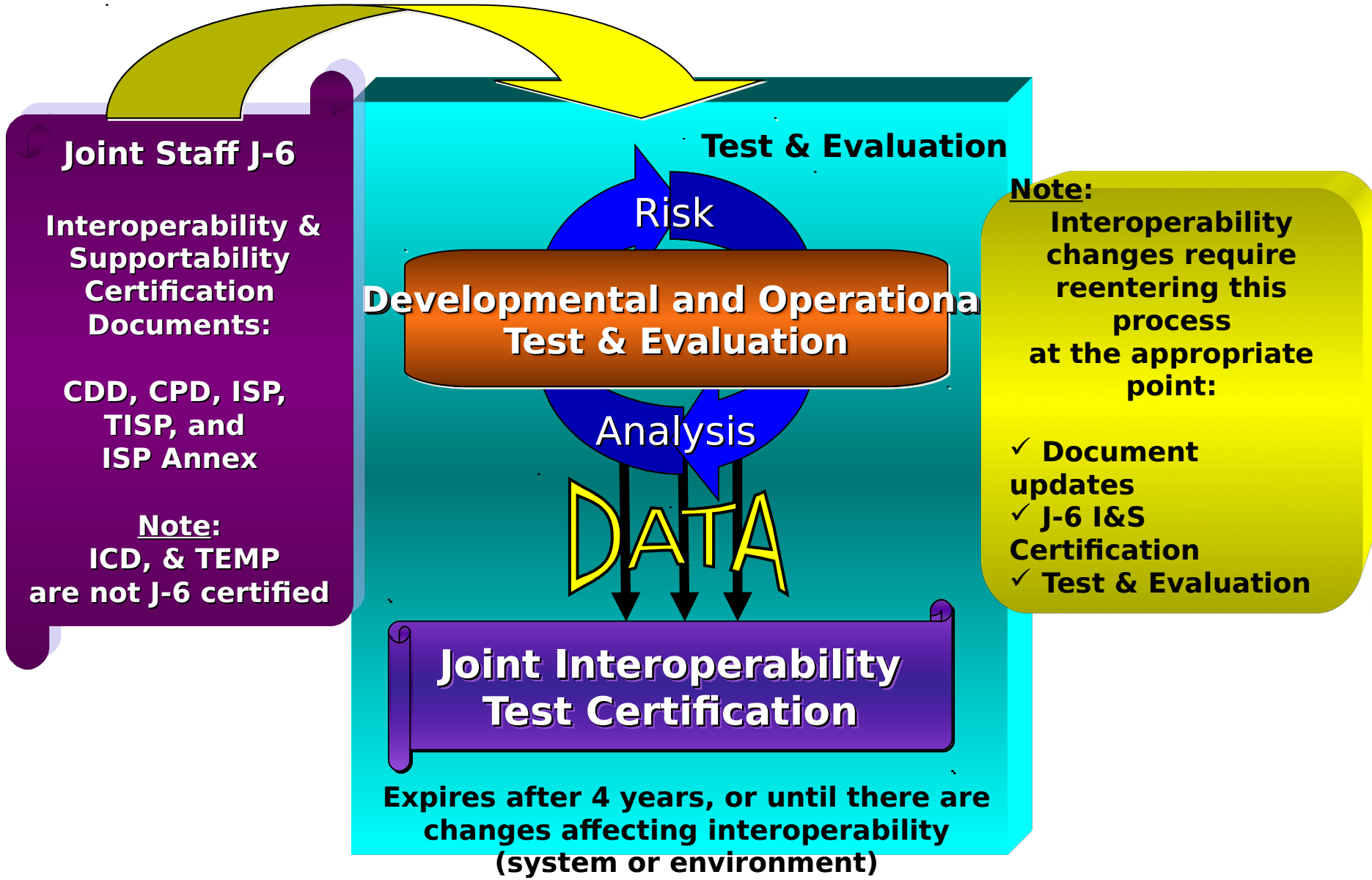
Joint Staff J-6
Interoperability & Supportability Certification Documents:
CDD, CPD, ISP, TISP, and ISP Annex
Note:
ICD, & TEMP are not J-6 certified
Test & Evaluation
Risk
Developmental and Operational Test & Evaluation
Analysis
DATA
Joint Interoperability Test Certification
Expires after 4 years, or until there are changes affecting interoperability (system or environment)
Note:
Interoperability changes require reentering this process at the appropriate point:
✓ Document updates
✓ J-6 I&S Certification
✓ Test & Evaluation

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Interoperability Testing Guidelines

- **Use Interoperability Certification Evaluation Plan (ICEP) to manage system certification <u>where applicable</u>**
- **JITC must use a production representative sample for interoperability testing and certification**
- **Test to Joint Staff J-6 certified requirements (CPD, ISP, TISP, ISP Annex, or NR-KPP Package)**
  - **JITC can not certify non-US systems for interoperability**
  - **Must certify ALL requirements for a particular increment/spiral**

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Interoperability Testing Guidelines (Continued)

- **Provide operationally realistic, end-to-end testing**
- **Conduct system-level interoperability evaluations/certifications (not “interface” certs)**
  - **Limited Interoperability Test Certification and Standards Conformance Certification are available (described later)**
- **Document incremental system progress toward certification**
- **Characterize and certify using affordable confidence level**

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Interoperability Testing Guidelines (Continued)

- **Each program / system has a JITC Capability Test Team (CTT) lead responsible for program / system issues**
  - **Leading and coordinating: requirements document review, funding, planning, testing, and certification tasks**
  - **Putting together test team drawing on SMEs from appropriate support divisions**
  - **Keeping STP entry current with status and results**

- **Support legacy as well as traditional and non-traditional acquisitions**

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Standards Conformance Testing Guidlines

- **Standards conformance testing establishes the extent to which a system conforms to the requirements of a standard**
  - **Standards conformance is necessary, but not sufficient to ensure interoperability**
- **JITC may certify conformance to standards for systems (IT/NSS or non-US) that implement standards that can possibly impact interoperability**
  - **DOD and Commercial customers**
  - **Conformance to various standards**
    - **UHF DAMA SATCOM, HF Radio MIL-STD, Secure Fax, etc.**

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Standards Conformance Testing Guidelines (Continued

- **JITC SME will determine which standards require testing vs. some other evaluation method**
- **JITC may also evaluate conformance to NATO STANAGs and issue a standards conformance certification**
- **Standards Conformance Certifications do not normally expire**
  - **A specific hardware/software version is certified conformant to a specific version of a standard**

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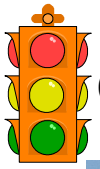
Testing Types and Environments



Certification

Standards Conformance

- **Ability to adhere to rules contained in applicable standards**
- **Increasing emphasis on data implementation IAW DoD Data Strategy**

Joint Interoperability

Ensures a system effectively exchanges information with other participants in a Net-Centric environment

Laboratory +

Comprehensive data collection for multiple tests under controlled conditions. Can include early user tests, Beta testing, FDCE environment, etc.

Live Exercise

Test ability to effectively exchange information in an exercise or test environment with conditions as realistic as possible. Ensures end-to-end interoperability.

Standards provide a necessary building block for ensuring interoperability, but are not sufficient to ensure that systems are interoperable in a joint environment

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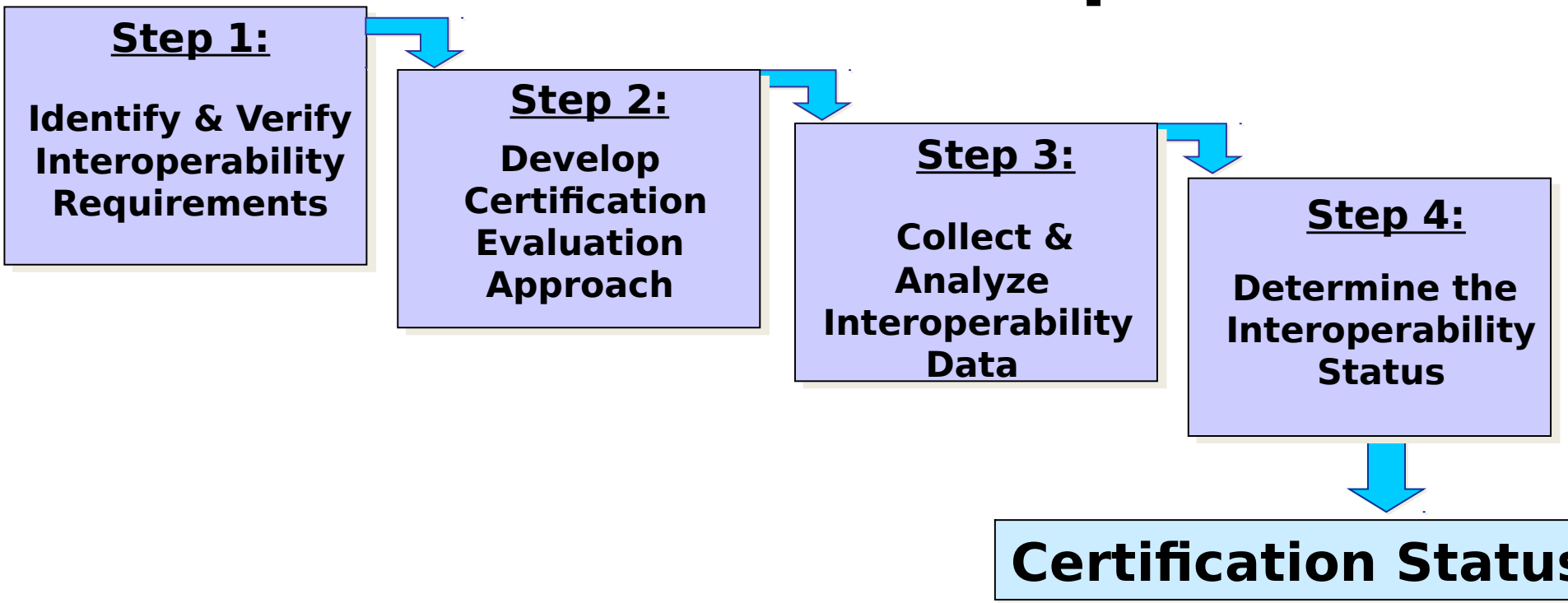
What Does Certification Involve?

Four Basic Steps



Interoperability Certification Steps

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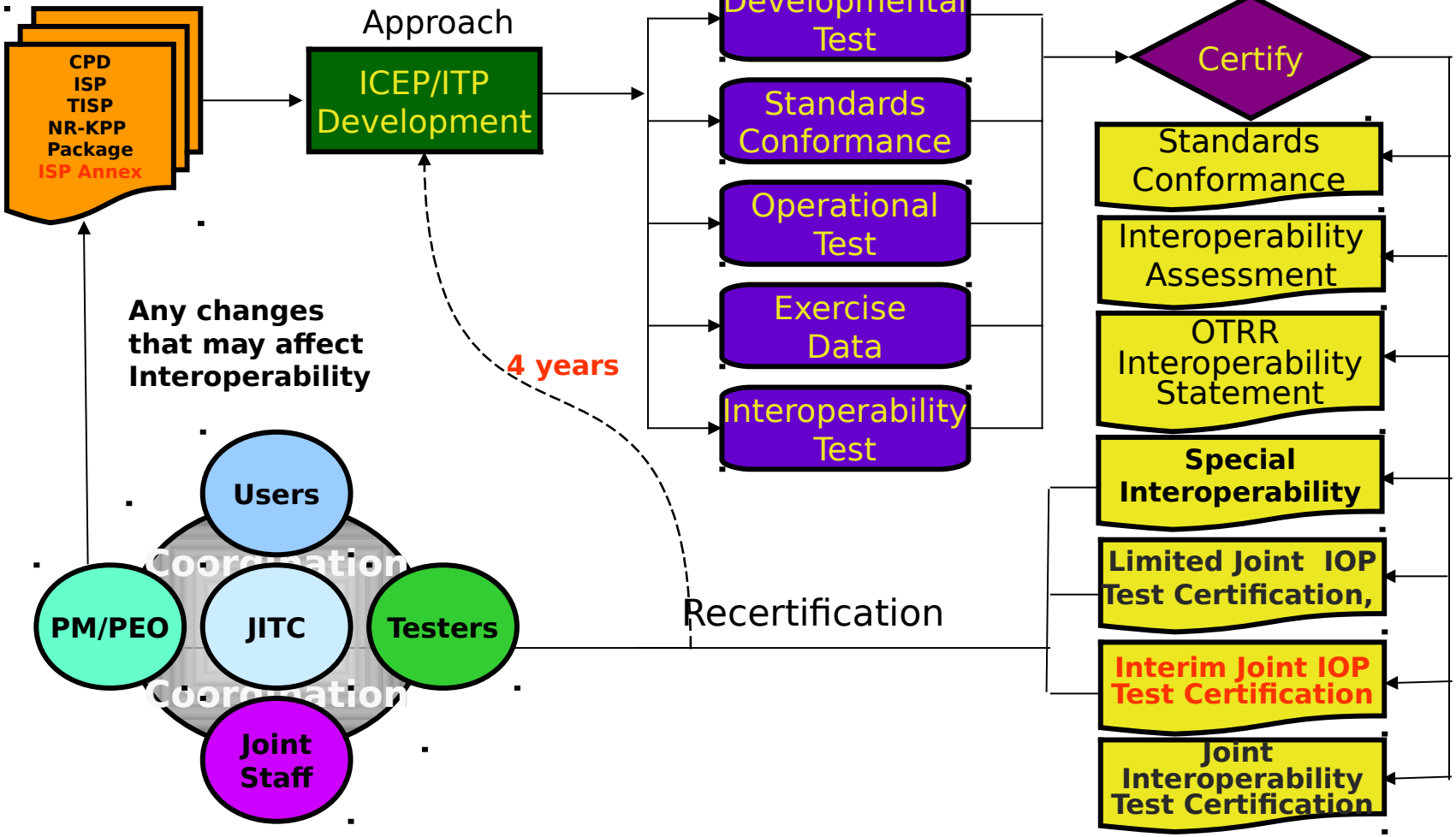
Step 1
Identify & Verify Requirements

Step 2
Develop Certification Evaluation Approach

Step 3
Collect & Analyze Interoperability

Step 4
Determine the Interoperability Status



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STEP 1

Step 1:

Identify & Verify Interoperability Requirements

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How Do I Know If a System Has Certified Requirements?

- **Knowledge Management/Decision Support Tool:**

  https://jrockmds1.js.smil.mil/guestjrcz/gbase.guesthome

- **J6 Assessment Tool - Located in the Joint C4I Program Assessment Tool - Empowered (JCPAT-E) Tool Suite:**

  https://jcpat.ncr.disa.smil.mil/jecoweb.nsf

- **Primarily used for staffing the requirements/capability document in support of the J-6 Interoperability / Supportability Certification.**

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Certified NR-KPP

- **Joint Staff J-6 will certify interoperability and supportability requirements for JCIDS documents for all ACAT**
- **JITC interoperability evaluations must be based on the complete NR-KPP for the particular increment**
  - **Increments (phases, blocks, releases, etc.) for evolutionary developments (including “spirals”) must have an NR-KPP for each increment – if not, the entire NR-KPP must be used**
- **NR-KPP can not be modified without the new NR- KPP being JS J-6 certified**

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Systems Without Certified Requirements

- **PM should coordinate with the Joint Staff J-6 regarding requirements issues before JITC certification**
- **J6 POC is:**

Joint Staff J68 Net Centric Capabilities
Pentagon, Room 2A872

DSN: 671-9839

Comm: 703-571-9839

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Systems With Testing Issues

- **Joint Staff J-6 POC is:**

Joint Staff J65B Joint Testing Branch
Room 1E596
DSN: 222-0905
Comm: 703-692-0905

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Systems with Requirements Issues

- **Use Joint Staff J-6 and the Interoperability Test Panel to resolve interoperability (req's/testing/ certification) issues, when needed.**

- **Assessment memorandum:**
  - **JITC can perform interoperability testing and issue an interoperability assessment memorandum without JS-certified requirements.**

JITC interoperability test certification memoranda may not be validated by JS without

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STEP 2

Step 2:

Develop Certification Evaluation Approach

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Testing Guidelines

- Inform Program Manager about the evaluation and certification process
- Identify all valid interoperability requirements and criticality
- Ensure requirements are well-defined and testable
- Determine what testing is necessary to assess all the requirements (i.e., identify the right thing to do)
- Identify project constraints - time, equipment, funding, personnel
- Perform cost/benefit analysis – affordable confidence level
- Prioritize testing – if we can’t test everything

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How Much Testing is Enough

- **Scope of testing depends on:**
  - **Mission criticality**
  - **System complexity**
  - **Number and criticality of the interfaces**
  - **Maturity of technology**
  - **System performance in the field, exercises, participation in other tests, etc.**

JITC SMEs will make determination
Focus on quality rather than quantity of tests

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Interoperability Certification Evaluation Plan

Interoperability Certification Evaluation Plan (ICEP)

- *Complex* system or FOS/SOS
- *Multiple* evaluation events
- Significant reliance on *non-JITC* tests

JITC Interoperability Test Plan (ITP)

- System is *not complex*
- *Few* evaluation events
- *JITC* performs majority of the testing

ITP(s) always required for JITC tests - ICEP may also be needed.

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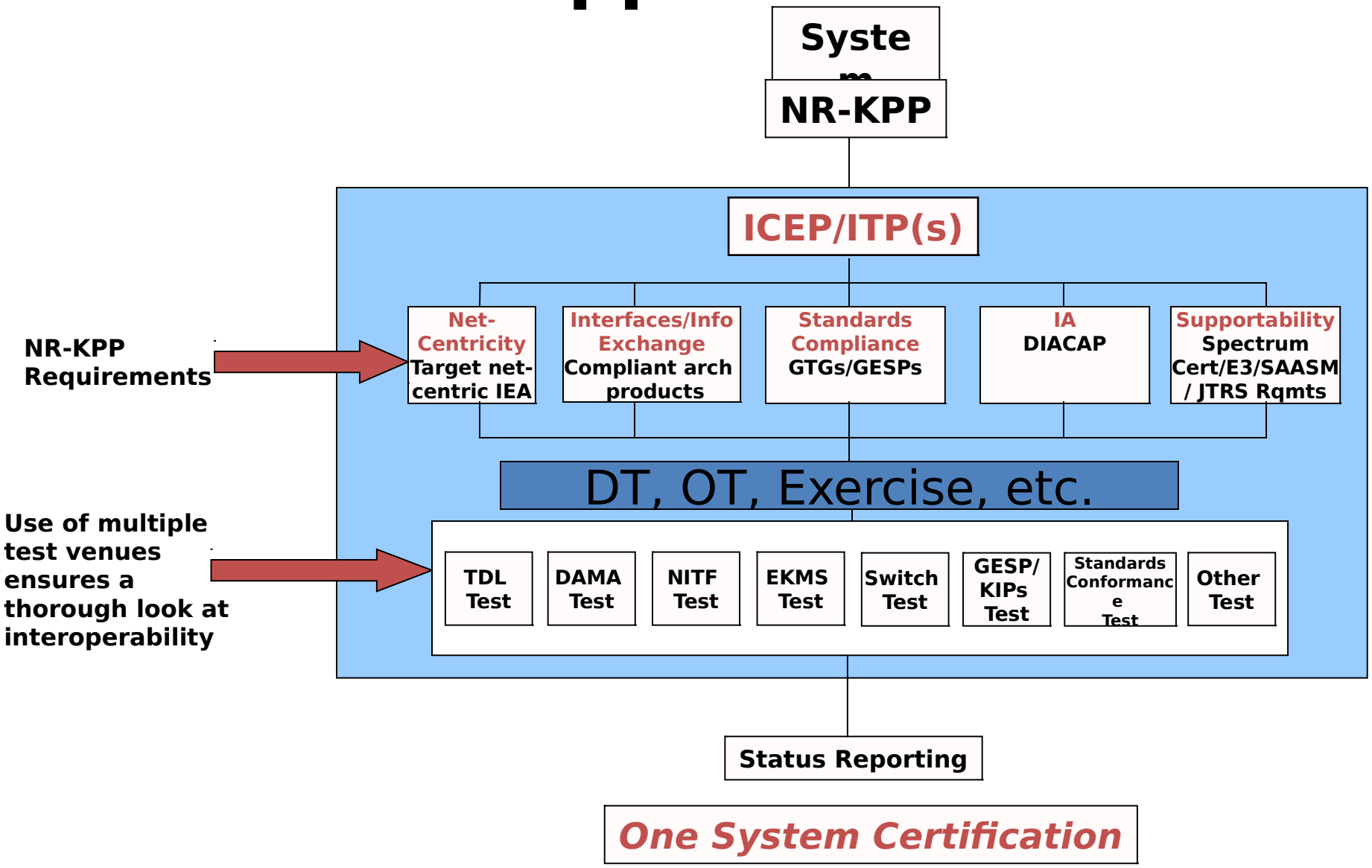
System Certification Approach Model



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STEP 3

Step 3:

Collect & Analyze Interoperability Data

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Collect & Analyze Interoperability Data

- **Collect and examine all available valid data:**
  - **GTGs/GESPs, compliance with net-centric data and services strategies/DoD IEA, DoD IA requirements, information/data exchanges IAW compliant solution architecture products, Spectrum Certification and E3/SAASM/JTRS requirements**
- **Valid data must be:**
  - **Comprehensive**
  - **Accurate**
  - **Reliable and repeatable**
- **Analysis:**
  - **Unbiased**
  - **Conclusive results representing entire range of operational uses, configurations, and conditions**
  - **Assessment of expected operational impact for any discrepancies**

Provide the warfighter/user with a complete picture of capabilities, problems, and risks

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STEP 4

Step 4:

Determine the Interoperability Status

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Interoperability Test & Certification

Certification	Description	System can be fielded (Y/N)?
Standards Conformance Certification	System is certified for conformance to a standard/standards profile	No
Joint Interoperability Test Certification	Full system certification. System meets at least ***all critical*** interoperability requirements	Yes
Limited Joint Interoperability Test Certification	System meets ***subset*** of critical interoperability requirements	Yes, with ICTO
Interim Joint Interoperability Test Certification	A capability module has adequately demonstrated interoperability for at least ***all critical*** threshold requirements identified for the increment	Yes
Special Interoperability Test Certification	Based on other J-6 approved requirements (i.e., no NR-KPP) -- E.g., use of UCR for voice switches	Yes
Non-Certification	Critical operational impacts expected Provides a warning to the warfighter	No
Interoperability Assessment	PM would like to determine the interoperability status System may lack J-6 certified	No

NR-KPP Testing Timeline

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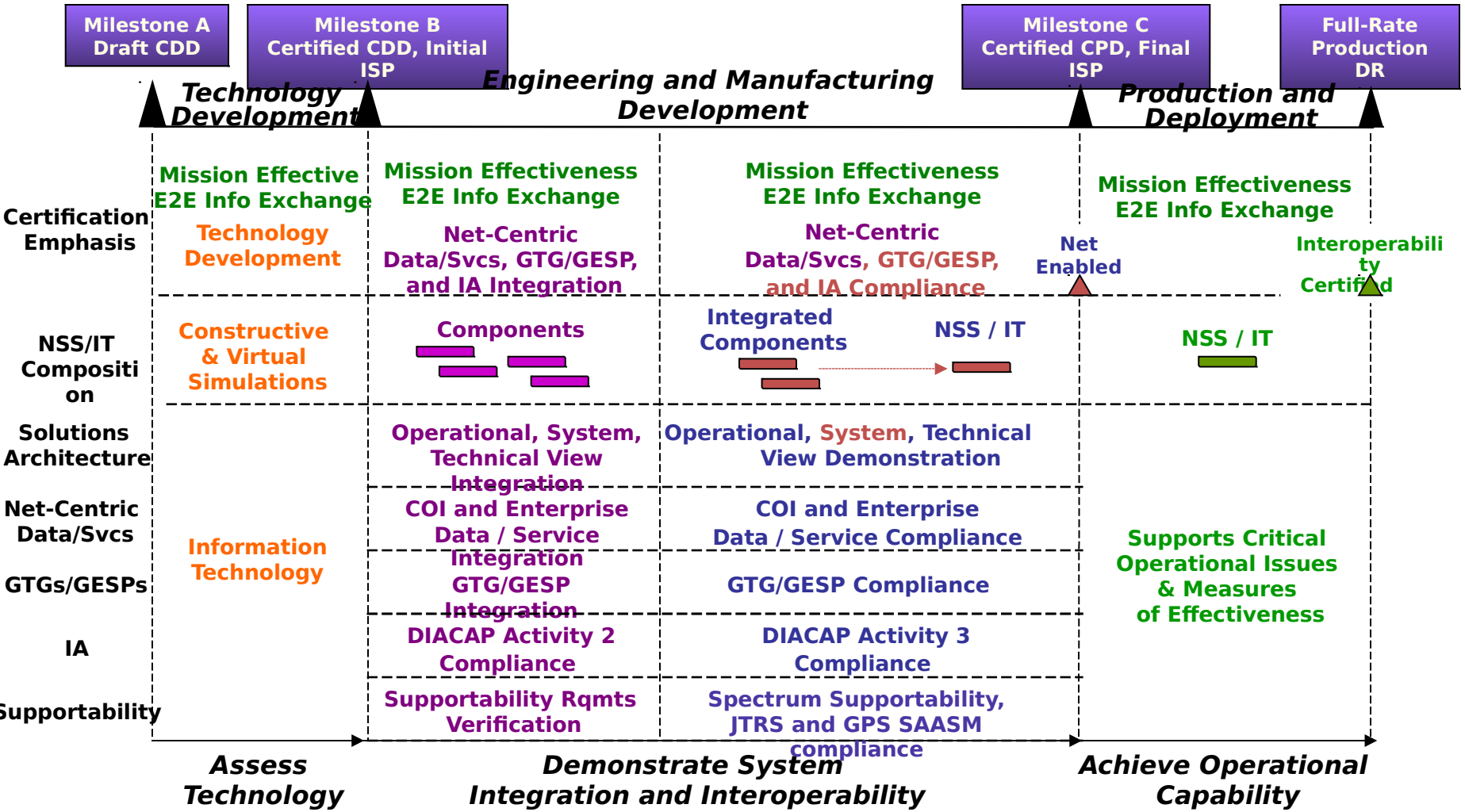

NR-KPP evaluation approach developed before MS B

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Policy Team

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Keys to Successful Implementation

Early Involvement	Close Coordination	Rely On	Standards Conformance	Functional And Operational Interoperability A Must
JS-J6-certified Reqts JITC Funded Test Program	*PM, DT, OT, & User Communities*	*Multiple Evaluation Events & Organizations*	*Not Sufficient But Necessary*	*Requires an Operationally Realistic Environment*

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Summary

- **Each system will have a single JITC POC to coordinate review of requirements documents, funding, planning, testing, and certification.**
- **Interoperability requirements must be certified by the Joint Staff J-6.**
- **Certification process applied to all systems:**
  - **ACAT, Non-ACAT, Fielded**

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Summary (Continued)

- **System-level Interoperability Test Certification:**
  - **Meets all certified requirements**
  - **Tested in operationally realistic, end-to-end, environment**
- **Incremental progress reported:**
  - **Standards conformance certification**
  - **Interoperability assessment**
  - **Limited Joint Interoperability Test certification**
- **Interoperability Test Certification issued by JITC validated by Joint Staff J-6.**

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Questions?

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